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EXAMINER	
MASINICK, MICHAEL D	
ART UNIT	PAPER NUMBER
2128	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/559,644	FERTIG ET AL.	
	Examiner	Art Unit	
	Michael D. Masinick	2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 September 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *28-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *28-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's arguments filed 9/4/2008 have been fully considered but they are not persuasive.

2. In response to the USC 112 rejection regarding the lack of enablement rejection applicant has filed a publication entitled "SERCOS Interface". This publication discusses synchronization of drive systems and that such synchronization has been known since at least August of 1998. However, this publication makes no reference whatsoever to WIRELESS synchronization means in the microsecond range as claimed. As the claim language is written to wireless synchronization means, and the prior art and all previous discussions have revolved around wireless synchronization means, the SERCOS document provides absolutely no benefit to one of ordinary skill in the art looking to make and use the invention. Therefor the USC 112 rejection stands as previously written. While the rejection below did not specifically state that it is the wireless part of the synchronization means that renders it important and previously unknown it should have been clear to applicant that the SERCOS document did not satisfy the requirement for enablement of such a system. Furthermore, the discussion of the rejection by the examiner in the prior office action discussed the Elson documents and their relation to the rejection. This rejection is maintained below with modifications to clarify the language in the actual rejection which applicant misunderstood.

3. Applicant maintains arguments regarding the Elson references and their publication dates. No new arguments are presented and no new arguments are formed by the examiner. The publication date is set as May 30, 2003 for the reasons previously given. The SRI international case cited by applicant is not relevant to this case as Mr. Elson documented his publication on

the front page of his website with a date and provided a link to the publication. It was VERY clearly organized with the clear intent to publish his document.

4. With regard to applicant's arguments regarding the laboratory conditions, as was previously noted, "in a microsecond range" is interpreted to mean that the time can be measured in microseconds. The claims have not specified any action range and this term is extremely broad. That said, the Elston document shows synchronization of one microsecond under ideal laboratory conditions and notes that a "reasonable variable delay can be expected". So, let's say this reasonable delay only allows for synchronization to 50 or 100 microseconds when NOT under ideal laboratory conditions. Examiner considers both of these to be very high conservative estimates, yet they still both fall "in the microsecond range".

5. Applicant has chosen not to reply to examiner's comment that Elson shows actuators in the opening sentence of the dissertation and chooses instead to continue with the incorrect argument that Elson only shows sensor networks. This argument is not persuasive for reasons previously given.

6. With regard to the newly added claim element "via measurements of said actual values of said drive system taken for a plurality of cycles", applicant has stated that control of drives require multiple cycles. It is clear that the Elson document ("Time Synchronization in Wireless Sensor Networks") is also available to control actuators (see section 3.3 specifically). Thus, this claim element is inherent to the Elson document as shown by applicant.

7. All rejections are maintained and modified below to rejection new claim elements.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 28-42 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Specifically as addressed above, applicant claims to be able to synchronize sensors, actuators, and drive systems **wirelessly** "in the microsecond range" yet provides virtually no explanation as to how the system operates or how this microsecond range is achieved.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 28, 30, 31, 35-38, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,788,980 to Johnson et al in view of "Time Synchronization for Wireless Sensor Networks" and "Time Synchronization in Wireless Sensor Networks" (Dissertation) both by Jeremy Elson.

3. Regarding claims 28 and 42, Johnson shows a packaging apparatus, comprising: a central control unit (Enterprise Server 52); a plurality of sensors (Column 1, line 57); a plurality

of actuators (Column 1, line 57); a drive system (Column 2, lines 1-6); means for recording in digital format actual values of said plurality of sensors (Column 8, lines 28-39), actual values of said plurality of actuators and actual values of said drive system; means for determining setpoint values or control commands for said drive system (Column 8, lines 28-39) via measurements of said actual values of said drive system taken for a plurality of cycles (see argument below); means for transmission in digital format of said setpoint values of control commands for said drive system between said drive system and said central control unit via a transmission protocol from said central control unit via said means for data transmission to said plurality of actuators or said drive system (Figures 1 and 2, network); means for data transmission between said plurality of sensors, said plurality of actuators, said drive system and said central control unit of said actual values of said plurality of sensors, said actual values of said plurality of actuators and said actual values of said drive system recorded by said means for recording in digital format, said means for data transmission including wireless transmission means (Column 6, lines 6 and 7) means for evaluating data received by said central control unit from said plurality of sensors (Central control), said plurality of actuators and said drive system; and, means for eliminating errors by use of redundancy in said means for data transmission and said means for transmission in said digital format. Examiner notes that inherently all wireless protocols must contain error correction technology with redundance in order to function as it is inevitable that some data loss will occur in a wireless medium. Teaching references can be provided if requested by applicant.

4. Johnson does not show a transmission protocol for said wireless transmission means operating cyclically with short cycle times and performing a synchronization of said plurality of sensors, said plurality of actuators and said drive system with time-dependent action

and further providing said actual values and said setpoint values or control commands for said drive system in each cycle and accuracy of said synchronization in a microsecond range.

5. As noted above in the response to arguments section, the Elson documents show the research done on Time Synchronization in Wireless sensor/actuator networks which provide data at each cycle and the synchronization is in the microsecond range ("capable of precision on the order of 1 microsecond").

6. Based on the analysis presented above, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the concepts presented in the Elson documents to improve the time synchronization of Johnson from the 50 millisecond range into the microsecond range (a clear improvement and a benefit easy to see).

7. With regard to the newly added claim element "via measurements of said actual values of said drive system taken for a plurality of cycles", applicant has stated that control of drives require multiple cycles. It is clear that the Elson document ("Time Synchronization in Wireless Sensor Networks") is also available to control actuators (see section 3.3 specifically). Thus, this claim element is inherent to the Elson document as shown by applicant.

10. Referring to claim 30, Johnson shows wherein said short cycle times are in a millisecond pulse (Column 14, line 36).

11. Referring to claim 31, Johnson shows wherein said means for eliminating errors in said means for data transmission and said means for transmission in said digital format includes an HDLC procedure. Examiner notes that HDLC procedures are part of the standard for internet

communication. Johnson shows the use of internet communication between computers which inherently uses an HDLC procedure.

12. Referring to claims 35 and 36, Johnson shows wherein said means for data transmission takes place bidirectionally or unidirectionally (Figures 1 and 2. Sensors can be read only and may not receive data).

13. Referring to claim 37, Johnson shows a programming unit connected to said central control unit (Figure 2 – Operators Console).

14. Referring to claim 38, Johnson shows wherein data of slow running processes are only recorded in individual time-spaced cycle pulses, so that only the data of fast running processes are contained in cycle pulses contained in between (Column 14, lines 35-38).

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 29, 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,788,980 to Johnson et al al in view of "Time Synchronization for Wireless Sensor Networks" and "Time Synchronization in Wireless Sensor Networks" (Dissertation) both by Jeremy Elson as applied above, and further in view of U.S. Patent No. 6,415,439 to Randell et al.

16. With reference to what was shown above, Johnson/Elson does not show a servo motor controlled by specifying position data at associated points in time done by wireless communication by RF, broadband radio, and infrared.

17. Randell shows a protocol for a wireless control system having a servo motor controlled by specifying position data at associated points in time done by wireless communication by RF, broadband radio, and infrared.

18. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the protocol for wireless control of servo motors as part of the control system of Johnson because it allows for several wireless devices to be controlled simultaneously by a single controller (similar to Johnson), engages in bidirectional communication, is forward compatible and is inexpensive.

Allowable Subject Matter

19. Claims 39-41 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

20. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael D. Masinick whose telephone number is (571) 272-3746. The examiner can normally be reached on Mon-Fri, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached on (571) 272-2279. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael D Masinick/

Primary Examiner, Art Unit 2128